



Zebra Technologies
Card Printer Business Unit

P420 User Training

Module 22



Eltron®

Agenda

- Topics We Will Cover
 - Product Overview
 - Supplies Overview
 - Installation of Supplies
 - Operation of The System
 - User Maintenance





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Overview



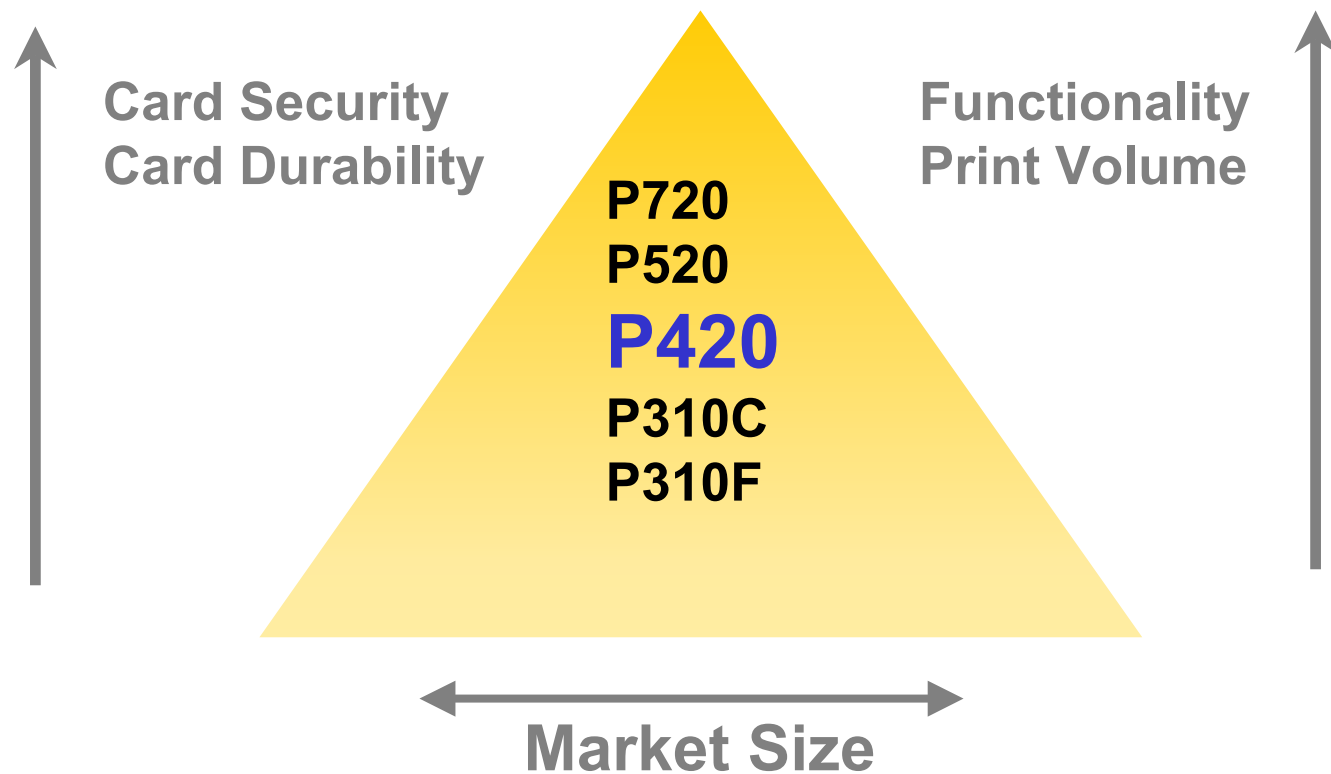
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The P420 Plastic Card Printer

- The P420 Is an All New Industrial Class Dual-sided Color Card Printer From Eltron Card Printer Products
- The P420 Provides the Best Combination of Features for the Best Price of Any Printer in Its Class
- The Eltron P420 Is the Newest Member of the Widest Product Range of Plastic Card Printers on the Market



Where **P420** Fits



What's New in the P420

- Incorporates All the Great New Features of the P310
 - 32 Bit Processor
 - Polycarbonate Frame
 - Cleaning Cartridge
 - Card Thickness Control
 - Auto Ribbon Synchronization
 - Magnetic Stripe Encoder
 - Flash Based Firmware
 - Packaging



What's New in the P420

- Plus All New Features:
 - Rugged Metal Enclosure With Transparent Window
 - Easy to Use 2 Line 16 Digit LCD Display Control Panel and Tone
 - Encoded Card Reject Hopper With Card Counter
 - 100 Card Capacity Card Feeder With Single Card Feed Slot
 - 250 Dual Sided Card Ribbon Capacity (YMCKOK)
 - Centronics Parallel Interface
 - 4 Megabytes Standard Memory
 - Rotary Flipper Design





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Hardware



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Product Overview

- Color Dye Sublimation and / or Monochrome Thermal Transfer Edge to Edge Printing
- Dual Sided Color Printing at 300 Dpi (12 Dots/mm)
- Easy to Use LCD Control Panel
- Rugged Metal Construction
- 102 Cards/Hour (YMCKOK)



- One Year Warranty
- Optional Internal Mag Stripe Encoding
- Optional Smart Card Contact Station

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Specifications

Technology	Dye Sublimation Thermal Transfer
Print Resolution	300dpi
Print Speed	<i>102 CPH YMCKOK</i> <i>(Color on Front Black on back)</i>
Bar Codes	Code39, 2/5 interleave & standard, code128, Monarch, UPC A, EAN8,13.
Interface	Centronics Parallel or RS232

Specifications

Card Type ISO Format	CR80-ISO 7810 MAG: 7811 SMART : 7816
Magnetic Encoding	3 Tracks (ISO & Custom) 2 Media Recording 300 OERSTEDS 4000 OERSTEDS SCRATCH RESISTANT ENCODER
Smart Encoding	ISO 7816
Card Dimension	85.6 x 53.98 mm <i>10 to 60 mil (mono)</i> <i>20 to 60 mil (color)</i>

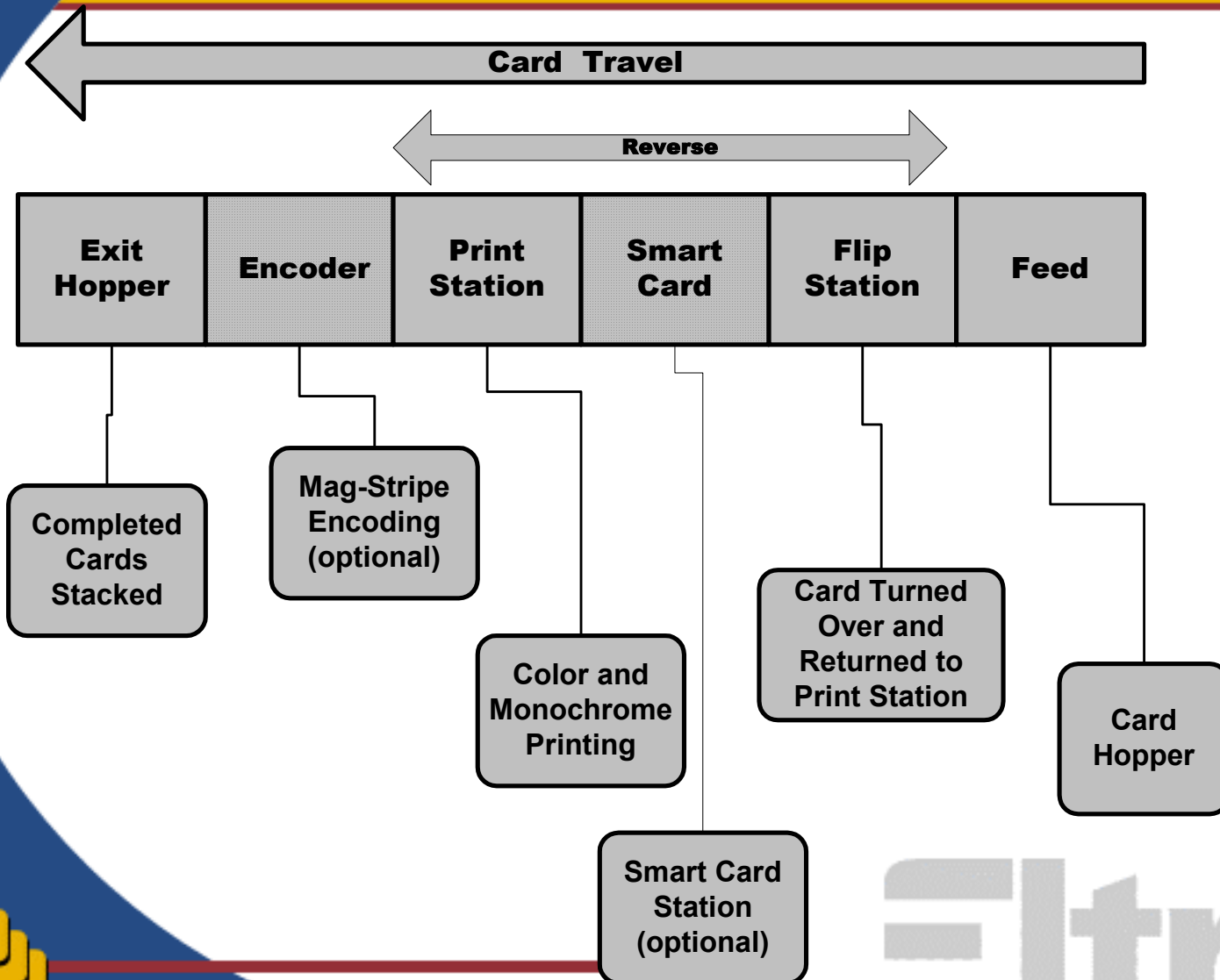


Specifications

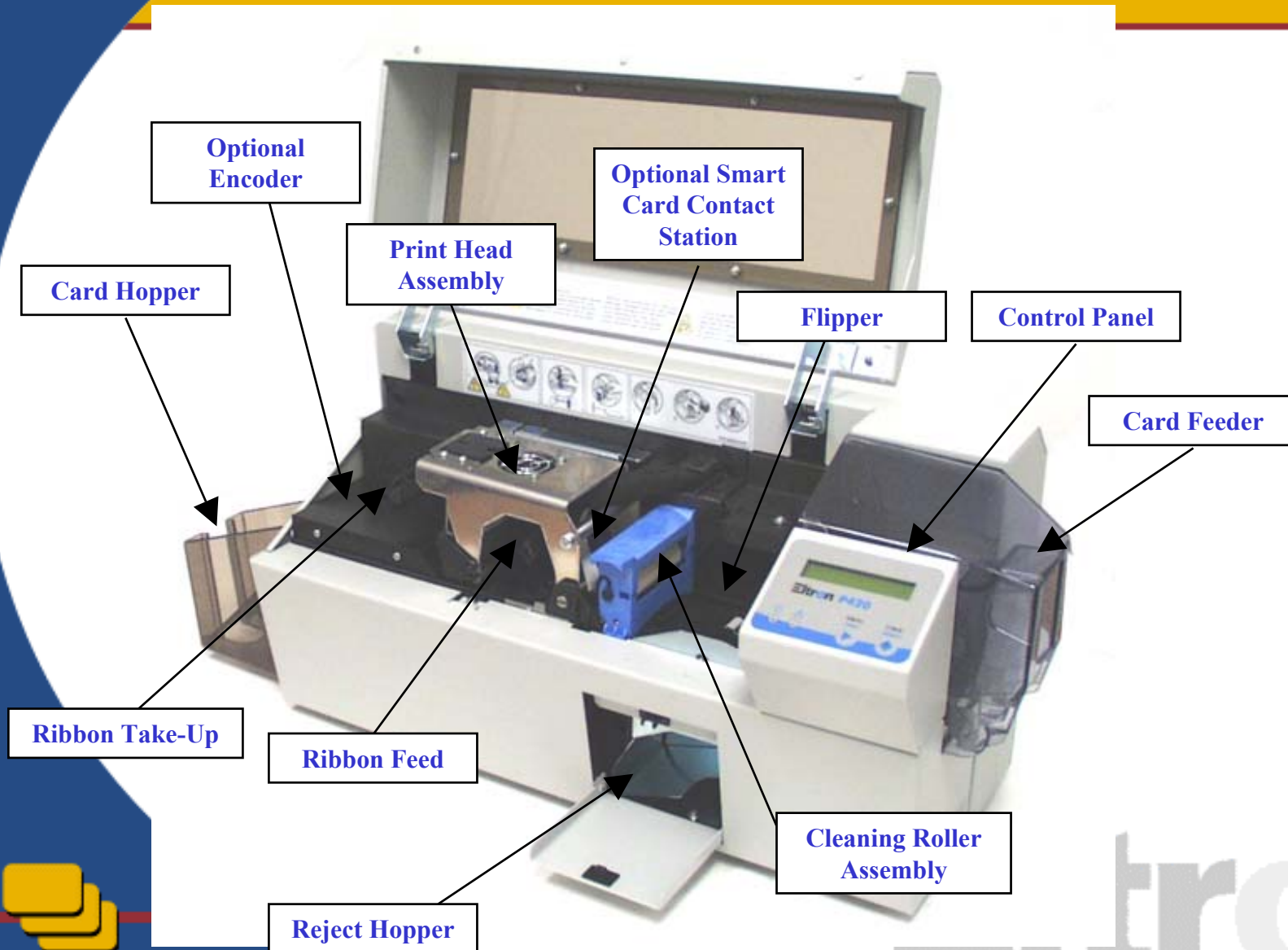
Memory Expansion	<i>Standard 4 meg</i>
Input Hopper	300 cards (10mil) 100 cards (30 mil)
Output Hopper	300 cards (10mil) 100 cards (30 mil)
Printer Dimensions	Depth: 10.17" (254mm) Width: 20.90" (523mm) Height: 10.76" (269mm) <i>Weight : 27.5 lbs (12.5 kg)</i>



P420 Process Diagram



P420





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Consumables



Ribbons Supported In the P420

- YMCKO
 - Yellow
 - Magenta
 - Cyan
 - Black Resin
 - Varnish Overlay
- KdO
 - Monochrome
 - Dye Sublimation
 - Varnish
- KrO
 - Monochrome
 - Resin
 - Varnish
- YMCKOK
 - Yellow
 - Magenta
 - Cyan
 - Black Resin
 - Varnish Overlay
 - Black Resin
- H
 - Hologram



Cards

- Recommended Card Media
 - PVC
 - Composite
- Card Thickness
 - 10 mil to 60 mil (.25mm to 1.524mm)
 - ISO CR-80 - ISO 7810 2.125" X 3.385" (54mm X 86mm)



Understanding The P420 Part Number

- P420C-X1 X2 X3 X5 - Y1 Y2 Y3
 - X1 Smart Card Contact Station
 - 0 = None
 - E = Yes
 - X2 Magnetic Encoder
 - 0 = None
 - M = Yes
 - X3 Magnetic Encoder Defaults
 - 0 = None
 - 1 = Stripe Down HiCo
 - 2 = Stripe Down LoCo
 - 3 = Stripe Up HiCo
 - 4 = Stripe Up LoCo
 - X4 Memory Expansion
 - 0 = Standard
(Always 0, No Expansion Offered)
 - X5 Interface
 - P = Parallel
 - S = Serial



Understanding The P420 Part Number

- P420C-X1 X2 X3 X5 - Y1 Y2 Y3
 - Y1 Power Cord
 - A = 120V A.C. U.S.
 - E = 220V A.C. European
 - U = 240V A.C. U.K.
 - Y2 User Documentation
 - C = Chinese
 - E = English
 - F = French
 - G = German
 - I = Italian
 - P = Brazilian Portuguese
 - S = Spanish
 - A = English & Spanish
 - B = French & German
 - 0 = None
 - Y3 Software
 - C = WindCard CD Only
 - F = Windows Drivers Only (Floppy Disk)
 - B = WindCard CD and Windows Drivers (Floppy Disk)
 - 0 = None



Part Number Example

- P420C- E M 1 0 P - A A B
 - P420 Color Printer With:
 - Smart Card Contact Station
 - Magnetic Encoder
 - Stripe Down HiCo
 - Standard Memory (only option)
 - Parallel Interface
 - 120V U.S Power Cord
 - English & Spanish Documentation
 - WindCard CD and Windows Drivers on Floppy Disk





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Installing The Printer

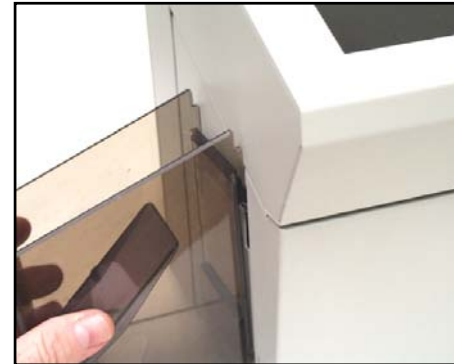
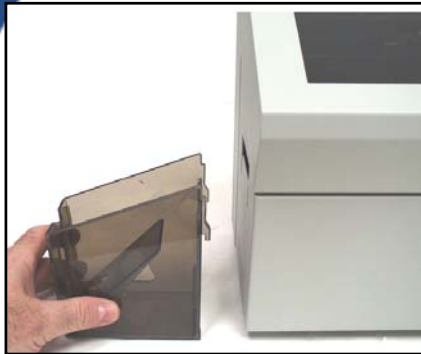


Installing The Printer



- Un-box the Printer and Set It on a Flat Surface
- Remove All the Shipping Tape

Printed Card Hopper



- Hook the Card Hopper Onto the Printer

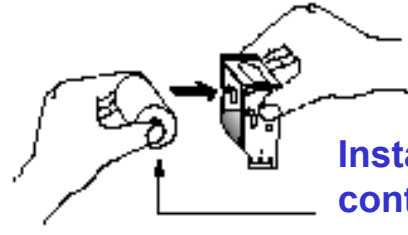


Cleaning Roller Assembly

- Remove the Cleaning Roller and Cleaning Roller Assembly From the Accessory Box
- Install the Cleaning Roller Into the Assembly As Shown



Carefully peel off wrapper from new Cleaning Roller



Install new Upper Roller into assembly. To avoid contamination, always hold the cleaning roller assembly by the ends.



Cleaning Roller Assembly

- Insert the Cleaning Roller Assembly Into the Printer As Shown

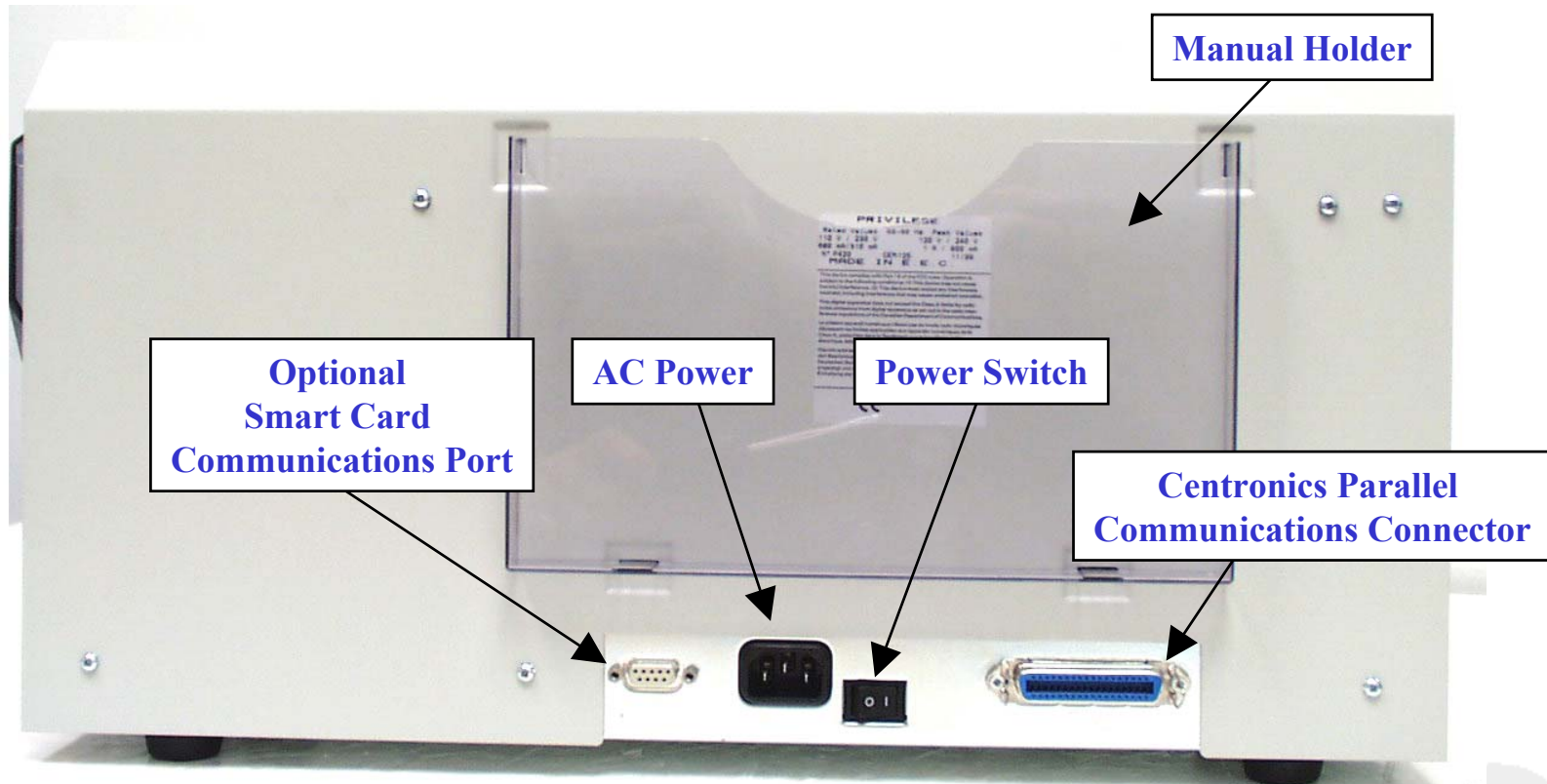


Cleaning Roller Assembly



P420 Rear Connectors

- Connect the Printer Power Cord and Communications Cable





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P420 Front Panel



Front Control Panel

- The Front Panel of the Printer Has Two LED's and a 32 Character Two Line Display to Report Information to the User



LED'S



- Power LED
 - On when power is applied
- Alert LED (with beeper)
 - LED is on when an error condition exists
 - The Beeper will sound three alert “beeps” and the LCD display will show the associated error message

Buttons



- Menu Button (Left)
 - Brings printer into the Menu Mode when pressed with the printer showing **READY** on the LCD display
 - Used in Menu Mode to scroll through Menu Options
 - Beeps when pressed



Buttons



- Select / Reset Button (Right)
 - Used to clear an error status (when LCD shows an error report and Alert LED is on)
 - **Also invokes automatic retry of the operation which gave the error**
 - Used in Menu Mode to select a Menu Option, thereby causing selection of the associated function or sub-menu
 - Beeps when pressed

LCD



- Backlight LCD
 - Provides Dynamic Feedback of Printer Operation and Error Conditions to the User
 - Provides Interactive Selection of Additional Features
- Two Modes
 - Status and Error Reporting
 - Menu Mode, Which Provides Access To:
 - **Cleaning Functions**
 - **Printer Information**
 - **Self Test Functions**

LCD



- LCD Functions and Messages Will Be Explained Later in This Presentation





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Installing The Ribbon



Preparing The Ribbon



- Remove the New Ribbon From the Box
- White Cores Are The Standard 200 to 250 Image Size



- Blue Cores Are The Enhanced 350 Image Size
- Both Can Be Used in the P420

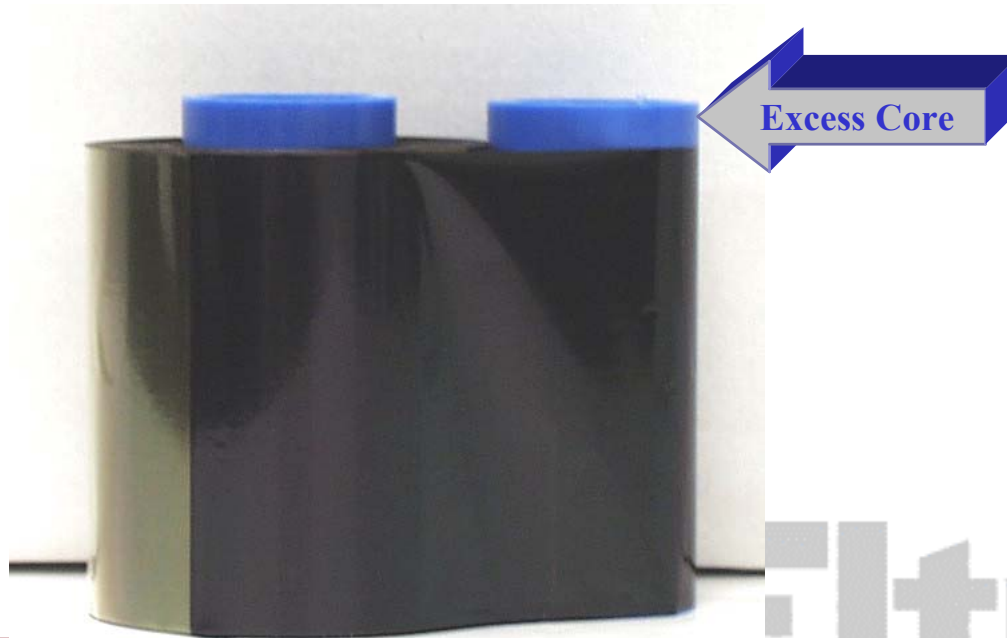
Installing The Ribbon

- Open the Print Head by Pressing the Front Latch



Installing The Ribbon

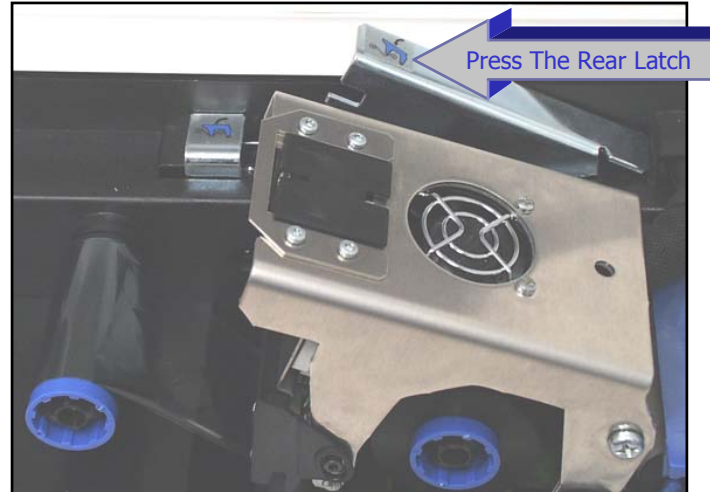
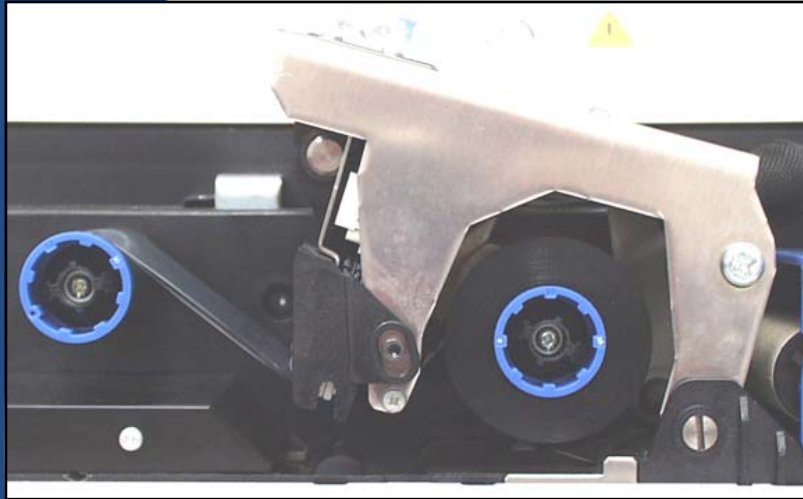
- The Ribbon Comes Attached to the Take- Up Core and Will Only Install Onto the Spindles in One Direction
 - Excess Core Toward the Outside of the Printer



Installing The Ribbon

- Unroll Enough Ribbon to Span the Distance Between the Supply and Take-up Spindles and Loop Under the Print Head
 - Align the Supply and Take-up Cores With the Spindles
 - At the Same Time Slide Both the Supply and the Take-up Cores All the Way Onto Their Respective Spindles
 - **DO NOT TURN THE SPINDLES BY HAND TO TAKE-UP THE SLACK, THE PRINTER WILL AUTOMATICALLY DO THIS WHEN THE PRINT HEAD IS CLOSED**
 - Close The Print Head and the Ribbon Will Automatically Advance to the Proper Alignment

Installing The Ribbon



Selecting The Proper Ribbon

- Ribbon Synchronization Only Happens on Multi-panel Ribbons (I.E. Color or Monochrome With an Overlay)
- The Printer Ships With the Default Setting of YMCKO
- If the Ribbon Does Not Align Properly (Yellow Panel for Color or Black Panel for KrO, KdO)
 - Select the Proper Ribbon Using the Windows Driver or Your Application Software





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Installing The Cards



Card Input Hopper

- New Plastic Cards Will Often Stick Together When First Removed From The Packaging
 - A Simple Shuffling Of The Cards Will Greatly Reduce This Phenomenon
 - Be Extremely Careful Not To Bend or Scratch The Cards
- Cards Are Protected From Outside Contaminants
- Loading New Cards Is As Easy As 1,2,3,4
- Card Weight Is Permanently Attached to the Hopper



Loading The Cards



1 - Empty



2 - Open



3 - Insert Cards

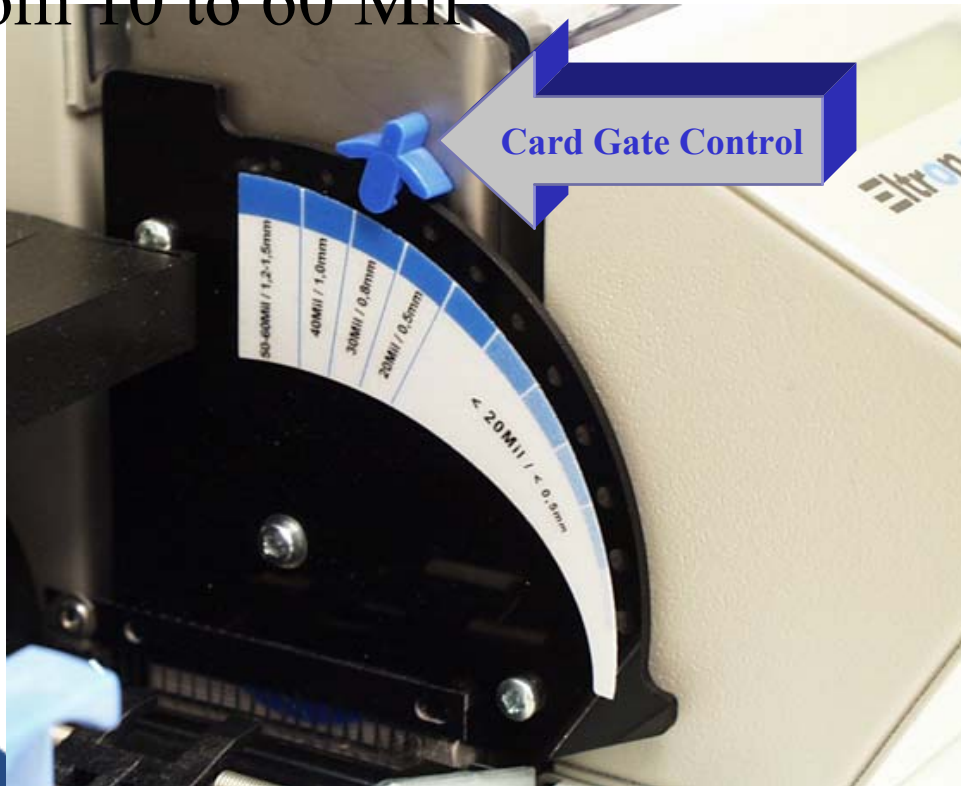


4 - Close



Adjusting For Card Thickness

- Card Gate Control
 - Adjust the Gage for the Proper Card Thickness From 10 to 60 Mil

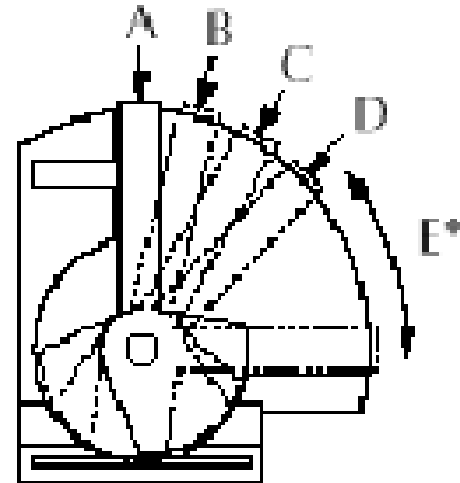


Card Gate Thickness

- Card Thickness :
 - A - 60 mil (1.524 mm) to 50 mil (1.27 mm)
 - B - 40 mil (1.016 mm)
 - C - 30 mil (0.762 mm)
 - D - 20 mil (0.508 mm)
 - E* - Less than 20 mil (0.508 mm)

*

- Start at the lowest position and move gage up to match card thickness.
- For other card thickness, start gage at the lowest position and move up until cards feed



Testing The Printer

- Print a Self Test Card (Stand Alone)
 - Turn the Printer Off
 - Press and Hold the Clear / Select Button and Power on the Printer
 - Release the Button When the Display Says Self Test
- The Test Card Can Also Be Printed Through the Menu on the Front Control Panel, Which Will Be Covered Later



Testing Communications

- Print a Self Test Card From the Windows Driver
 - From Windows Start Menu Access Printers
 - Right Click on the P420 Driver Icon
 - Select Properties
 - On the “General Tab” Select The “Print A Test Page” Button
 - The Printer Will Print the Same Test Card As the Stand Alone Test
 - If No Test Card Is Printed There Is a Problem With the Communications From the Host to the Printer





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LCD Status And Error Mode



LCD Messages

- Status and Error Reporting
 - Uses the top line of the display
 - Printer Status
 - Dynamic reporting showing the operation currently in progress on the printer
 - Allows user to understand and track progress of a printing operation
 - Error Status
 - Active when the Alert LED and Alert Beeper indicate the presence of an error
 - LCD provides description of the error condition



Status And Error Messages

Screen Message	Meaning	Action
INITIALIZING	The printer is performing an internal test before printing	Wait for ready message
READY	Ready for use	Nothing
PRINTING	Card printing in progress	Wait for card to be completed
WAIT TEMPERATURE	Print head is too hot	Printer will automatically stop and start again when print head has cooled
SELF TEST	Self test card printing	Wait for card to be completed
DOWNLOADING DATA	The card data is being transmitted from the host to the printer	Wait for card to be completed



Status And Error Messages

Screen Message	Meaning	Action
PRINTING YELLOW	Yellow panel of ribbon is being applied to the card	Wait for card to be completed
PRINTING MAGENTA	Magenta panel of ribbon is being applied to the card	Wait for card to be completed
PRINTING CYAN	Cyan panel of ribbon is being applied to the card	Wait for card to be completed
PRINTING BLACK	Black panel of ribbon is being applied to the card (YMCK)	Wait for card to be completed
PRINTING VARNISH	Varnish panel of ribbon is being applied to the card (YMCKO)	Wait for card to be completed
PRINT HOLOGRAM	A special Hologram ribbon is in use and a Hologram is being applied to a preprinted card	Wait for card to be completed



Status And Error Messages

Screen Message	Meaning	Action
MOVING CARD	The card is moving through the printer	Wait for card to be completed
CLEAN PRINTER	The printer is prompting for operator maintenance	Perform the cleaning procedure outlined in the Operators Manual
CLEANING	The printer is performing an internal cleaning routine	Wait for routine to complete
REMOVE RIBBON	The ribbon has not been removed for the cleaning process to begin	Remove the ribbon
OUT OF RIBBON	Ribbon has run out	Replace ribbon
MECHANICAL ERROR	The printer has detected an error while trying to move the card	Remove the jammed card



Status And Error Messages

Screen Message	Meaning	Action
OUT OF CARD	The card Input Hopper is Empty	Fill card Input Hopper or adjust Card Gate to accept cards
HEAD OPEN	The print head is not locked down in the print position	Close and latch the print head
COMMAND ERROR	The data from the host computer is corrupt	Check communication connections Check the file
PARAMETERS ERROR	The features of the card are not recognized	Check Windows driver for proper printer and configuration



Status And Error Messages

Screen Message	Meaning	Action
ENCODING ERROR	Data cannot be written or read from the cards magnetic stripe	<p>Check the cards are loaded with the magnetic stripe in the proper orientation</p> <p>Check the setting in the driver matches the coercivity of the cards being used (high vs. low)</p> <p>Check data conforms to ISO specifications</p> <p>Check Operators manual for complete instructions and setup</p>
MAGNETIC ERROR	The printer cannot detect a magnetic stripe	<p>Check card orientation</p> <p>Replace Cards</p>
BLANK TRACK		
FLASH ERROR		Contact Technical Support
NO ACCESS		





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LCD Menu Mode



Menu Mode

- Top Line of the Display Shows Menu Information
- Second Line of Display Clarifies the Function of the Two Press Buttons Relative to the Current Menu Item
 - **[NEXT] [SELECT]**
 - Left button scrolls to next item, right button selects this item
 - **[NEXT] []**
 - Left button scrolls to next item, right button has no action



Menu Mode

- Printer Will Also Return to **READY** If Menu or Select Are Not Pressed Within 10 Seconds
 - Provides a safety feature
 - Allows easy return to **READY** if user gets “lost” in the menu or uncertain about the function selected
- Menu Key Moves From **READY** Status Into the Main Menu



Menu Mode

- Further Presses of the Menu Key Scroll Through the Main Menu Options
 - **PRINTER INFO**
 - **CLEANING**
 - **SELF TEST**
 - **PRINTER DEFAULTS**
 - **READY** (I.e. exits menu mode and returns to **READY** status)



Menu 1 (Printer Info.)

- When Selected:
 - Menu key allows scrolling through the following printer parameters:
 - Printer Model Number (includes installed option codes)
 - Version of the printer firmware currently loaded
 - Number of impressions printed
 - Return to Main Menu (select this to go back to the main menu)



Menu 2 (Cleaning)

- When Selected, Brings up a Sub-menu of Cleaning Options
 - **CLEAN PRINT-HEAD**
 - For cleaning of the thermal Print Head and transport system
 - Prompts user to prepare for and execute cleaning of the printer using an alcohol soaked cleaning card
 - **CLEAN MAG-HEAD**
 - For cleaning of the Magnetic Encoder Head
 - Prompts user to prepare for and execute cleaning of the magnetic encoder head using a custom magnetic head cleaning card
 - **GO TO MAIN MENU**
 - Select this to go back to the main menu



Menu 3 (Self Test)

- When Selected, Brings up a Sub-Menu of Self-Test Options
 - **TEST PATTERN**
 - Print a card with the built in test pattern
 - **PRINT PARAMETERS**
 - Print a test card showing the operating parameter settings of the print engine
 - **MAG. PARAMETERS**
 - Print a test card showing the operating parameter settings of the magnetic encoder
 - **GO TO MAIN MENU**
 - Select this to go back to the main menu



Menu 4 (Printer Defaults)

- When Selected, Brings up a Sub-menu Which Reports Additional Printer Settings
 - **RIBBON TYPE**
 - Shows the type of ribbon installed
 - As known by the printer; may not match the ribbon physically installed until the installed ribbon has been selected through the driver
 - **OFFSET X: aa-Y:bb**
 - Shows the X print location offset value in pixels (aa)
 - Shows the Y print location offset value in pixels (bb)



Menu 4 (Printer Defaults)

- Additional Printer Settings (Continued)
 - **MAGN.OPTION:cccc**
 - Shows the setting of the magnetic encoder as (cccc), which can be
 - HICO (high coercivity), LOCO (low coercivity), NONE (No encoder present)
 - **GO TO MAIN MENU**
 - Select this to go back to the main menu



How To Return To Ready

- Do Nothing
 - Wait ten seconds without pressing any buttons and the printer will return to **READY**
- Scroll to Find
 - **READY**
 - Or **GO TO MAIN MENU**
 - Select this and then
 - Scroll back to **READY**
- Do Not Randomly Press **SELECT**





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User Maintenance



Maintenance



- For the P420 to Operate Properly It Is Important to Keep the Printer Clean and Free From Dust



Maintenance

- The Cleaning Frequency for the Printer, Depends on the Environment
- Recommendations
 - Change the Cleaning Roller
 - Every 3.5 Standard Ribbons (700 Images YMCKO)
 - Every 2 Enhanced Ribbons (700 Images YMCKO)
 - Use a Cleaning Card Every Time You Change the Ribbon
 - If the Black Rollers Look White - They Are Dirty
 - If the White Rollers Look Black - They Are Dirty



Changing The Cleaning Roller

- Remove the Cleaning Roller Assembly From the Printer by Gently Lifting Handle up and Removing the Assembly

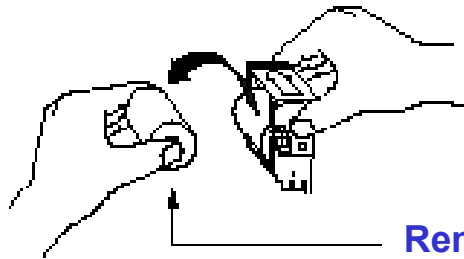


Cleaning Roller

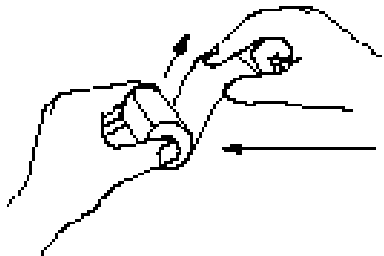
- A New or Good Cleaning Roller Is Yellow
- When the Roller Gets Dirty the Color Will Change to Brown or Black



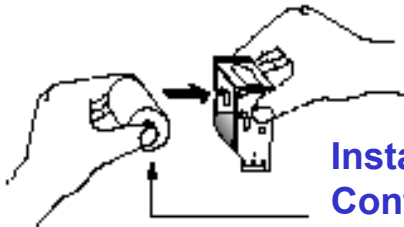
Changing The Cleaning Roller



Remove Cleaning Roller From Assembly and Discard.



Carefully Peel off Wrapper From New Cleaning Roller



Install New Upper Roller Into Assembly. To Avoid Contamination, Always Hold the Cleaning Roller Assembly by the Ends.



Installing The Cleaning Cartridge

- Insert the Cleaning Roller Assembly Into the Printer As Shown



Cleaning Cards (Option 1)



- Alcohol Based Cleaning Cards
 - Cleans the Rollers and the Print Head
 - Should Be Run Through the Printer Every Time a New Ribbon Is Needed

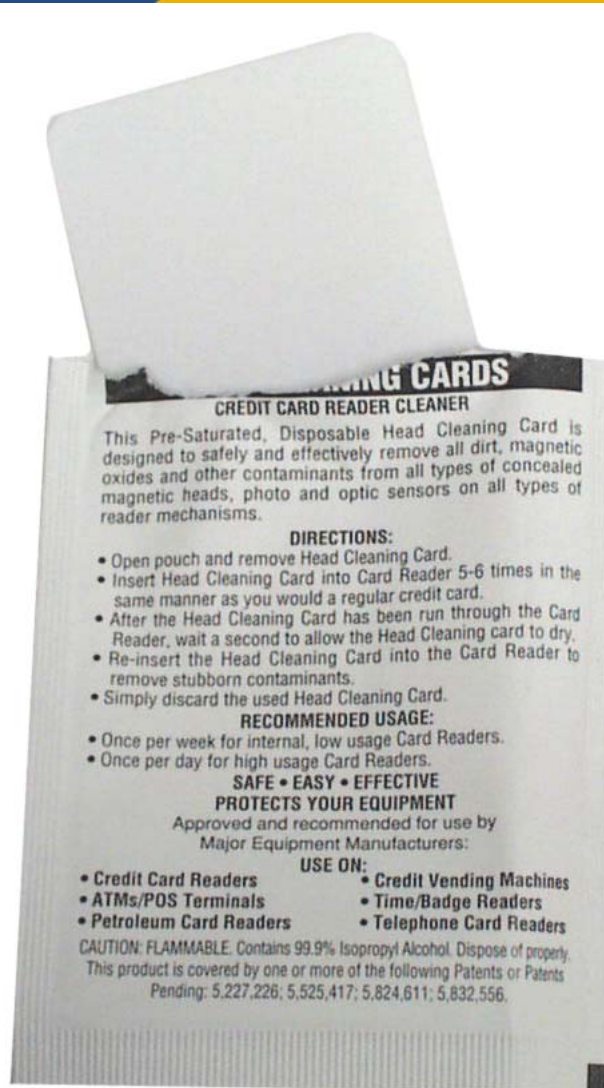
Cleaning Card Preparation

- Remove all Cards From the Printer
- Remove the Old Ribbon
- Close the Print Head



Cleaning Cards

- The Cleaning Card Must Be Used Immediately Upon Opening to Prevent the Alcohol From Evaporating



Inserting Cleaning Cards



- Insert an Alcohol Cleaning Card As Shown

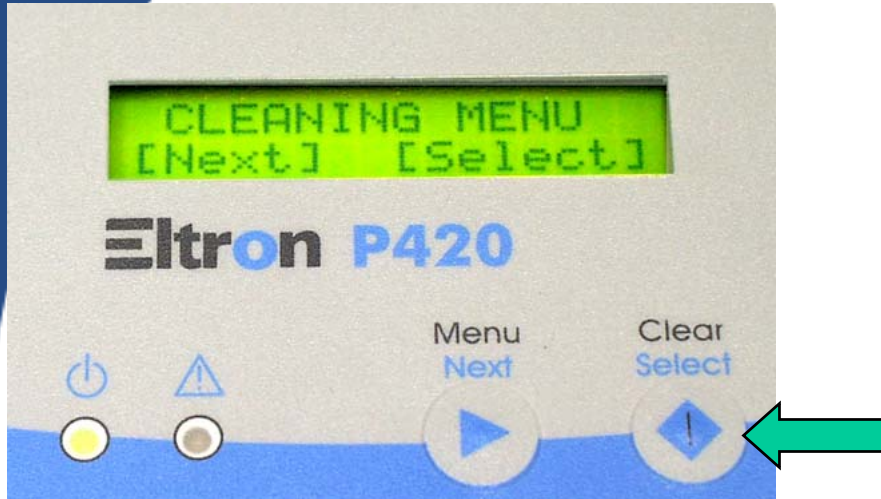


Cleaning Menu



- Press the Menu Button on the Control Panel Until the Cleaning Menu is Displays

Cleaning Menu



- When the Cleaning Menu Is Displayed
 - Press the Select Button to Enter the Menu



- The Next Menu to Be Displayed Will Prompt “Clean Printer”
 - Press the Select Button to Enter the Menu

Cleaning Menu



- If the Ribbon Is Still in the Printer You Will Be Prompted to Remove It
 - Remove the Ribbon and Close the Print Head and Printer Cover
 - Press the Clear / Select Button to Clear the Error
- The Cleaning Process Will Begin and the LCD Will Display the Message “Cleaning”

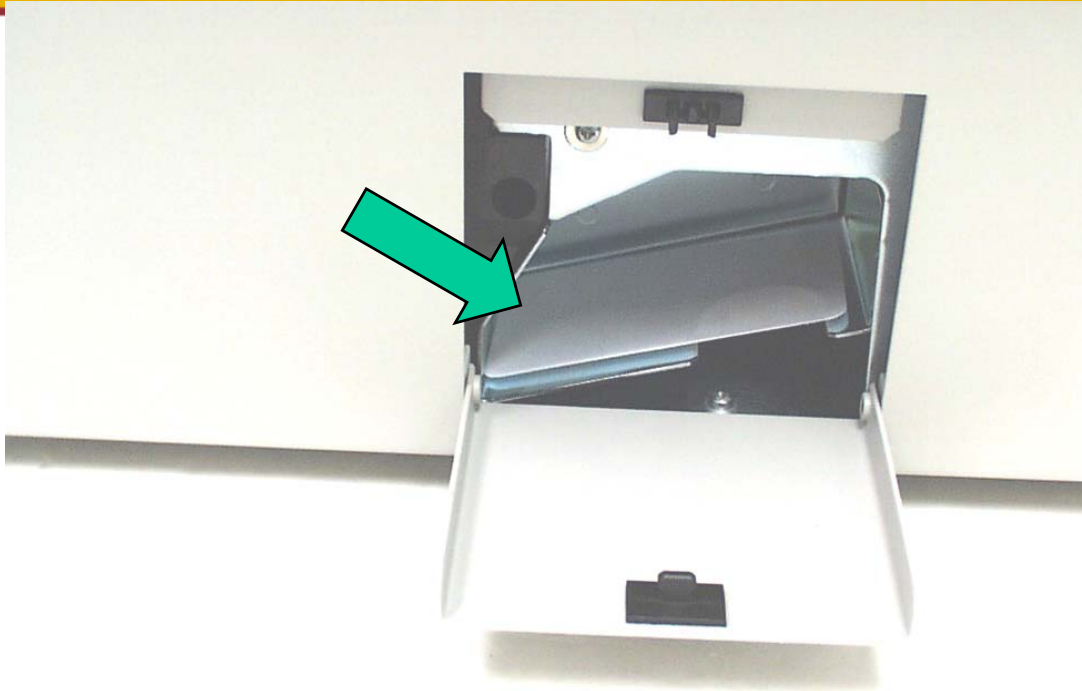
Starting The Cleaning Card



- Since the Cleaning Card Is Soaked in Alcohol It May Be Necessary to Help Feed It Into the Printer



Cleaning Process



- The Cleaning Card Will Be Fed Back and Forth in the Printer Cleaning the Rollers and Print Head
- When the Cleaning Process Is Complete the Cleaning Card Will Be Fed Into the Reject Hopper

Cleaning Menu



- When This Message Appears Press the Menu Button Until You See “GO TO MAIN MENU”
- Press the Select Button to Return to the Main Menu
- Press the Menu Button Until the LCD Displays “READY”

Cleaning Card (Option 2)

- Cleaning Cards Can Also Be Started by the Windows Driver
- Open the Properties Box for the P420 Printer
- On the “Card Tab” Select the “Tools” Button
- In the “Tools” Window Select the “Cleaning Card” Button
- The Cleaning Process Will Operate the Same As Option 1



Manually Cleaning The Print Head

- Open the Print Head Mechanism
- Gently Rub an Alcohol- Moistened Swab Across the Print Head From the Back of the Printer to the Front
- **Do Not Soak The Print Head**

